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# Classroom Bulletin

on

# Social Studies

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## COMMUNITY HEALTH

A resource unit on public health for
Social Studies 1 and 2

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## FOREWORD

This bulletin takes the form of a resource unit on public health. Its specific purpose is to assist teachers and students who intend to take up the community project, Community Health, in Social Studies 1 and 2. For those not interested in this particular problem it may serve as a guide to the organization, selection and arrangement of material for the other projects, to the statement of objectives and aims, and to the methods of evaluation that may be employed.

This bulletin is essentially a teacher's handbook and is not intended as a pupil reference. It contains a great deal of information not readily available to the teacher. How much of it will be used in the work on the project will depend upon the teacher. If this resource unit serves to clarify the teacher's thinking on the objectives of the project method and points the way to improved classroom techniques in organization, presentation and evaluation, it will have fulfilled its purpose.

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# TOWARDS PUBLIC HEALTH

## The Meaning of Public Health

"Public health" is today a household term universally accepted in the English-speaking world. Depending on our acquaintance with public health services, the term is possibly associated in our minds with government offices, officials, the signing of forms, free advice or treatment, free health pamphlets, public notices, free immunization, medical examinations, a feeling of security in the thought that services are available if needed, a sense of satisfaction and pleasure in the realization that public health-work is bringing relief to many sufferers who without these benefits would have no relief, and satisfaction or dissatisfaction with the nature and extent of these services. Whatever these associations may be, it is generally recognized that public health services operate in a wide field for the benefit of all, providing protection which is indispensable in a highly organized and complex modern society.

The layman, ignorant of the full scope of public health might experience some difficulty in distinguishing the public health problem from the many health problems that arise. He would readily admit that the control of communicable diseases, the disposal of sewage and the provision of water supplies are matters of public health but might be surprised to learn that maternity hospitalization and treatment for cancer sufferers are also the concern of public health. What is the scope of public health? Dr. H. S. Mustard considers "that a health problem becomes a public health one when, because of its nature or extent, it may be solved only by systematized social action."

Public health is working in an ever widening field. Its achievements in the past century have been tremendous, resulting in a complete change in the life of the average citizen in those countries in which public health has made the most progress. Although the benefits of public health services are manifold and far-reaching, nevertheless there is the growing danger of over-compulsion in allowing the state to assume greater responsibilities, and in consequence of the zeal of governments and public health experts to abolish slums they may create in their place institutions not far removed from concentration camps.

## Health in Prehistoric Times

Only by a glance backward into health conditions of earlier times can we truly appreciate the change that has been wrought in the life of man in the field of public health, and realize the extent to which the knowledge we have today is the accumulation of man's efforts through the ages.

Amongst the primitive peoples of prehistoric times and the isolated primitive groups that still survive, health was and still is bound up with the supernatural. A disease was regarded as something inflicted on the human body through the agency of an evil influence emanating from demons or from the inimical spirits of

human enemies. To effect a cure this curse had to be expelled from the body of the patient. Methods of eviction used were charms, beating, the administration of nauseous medicines and the drilling of holes in the sufferer's skull. These "cures" were administered by the medicine-man, the witch doctor or some person claiming to possess special gifts and healing powers. What we now know to be infection was regarded as an evil power attributed to unseen, malign forces. Protection from these forces was sought in the wearing of amulets and charms, and by incantations and religious performances. Primitive medicine was bound up with primitive religion and early hygienic practices seem to have their roots in religious ritual.

**Health and Hygiene in Early Civilizations**

The Cretan civilization of about 3000 B.C. to 1800 B.C. furnishes an early pattern of scientific sewage disposal in the royal palace at Knossos. To what extent sewage disposal was a public health problem is difficult to determine; nevertheless the presence of this carefully constructed system of shafts for the disposal of household refuse connected with roof-drainage, baths and lavatories with a water-flushing system indicate the essential development of hygiene in the well-developed civilization at Crete.

In ancient Egypt well-defined instances of public health activities may be noted. Priests were the physicians and the public health officials, who appear to have carried out their work with a diligence and to such effect that the historian Herodotus describes the Egyptians as the healthiest of civilized nations. A great deal of attention was given to personal cleanliness. Cities were laid out according to plan and at least some of the streets and houses had drainage. Infectious diseases were combated by fumigation. The sick were often brought to the temples which served as hospitals, where they were treated by the priests.

The Jews of biblical times learned much from the Egyptians. Their public health regulations were written into the laws of Moses, preserved in the Old Testament. All suffering from infectious diseases were regarded as "unclean" and were kept in isolation outside the camps. Personal cleanliness and continence was enjoined for the suppression of the social diseases and prostitution.

It is to the Greek genius that we trace the application of science to health. In the physician Hippocrates (460-378 B.C.) we find the prototype of the modern medical doctor. He studied his patient, learned to recognize the symptoms of each disease and endeavoured to find a remedy. It was a natural and not a supernatural cause that he was seeking. He rejected the old magico-religious conceptions that had dominated the practice of medicine for so long. The methods of Hippocrates were to have a far-reaching effect on the life of man, but many centuries elapsed before European culture had advanced sufficiently to grasp and apply these methods extensively. As this bulletin is in preparation the 1948 Olympic games are in progress in London, a vivid reminder of another important contribution of the Greeks to our knowledge of health. The cult of physical fitness permeated the life and thought of the Greeks. The

philosophers stressed the importance of gymnastics in the training of youth and the harmonious working of body and mind. A gymnasium was built in every large city for Greek youth and a stadium was the scene of public athletic sports much as it is today. Advances were made in water supply, drainage and sewage disposal and in some cities by-laws governing street-cleaning were in operation. After the manner of the Egyptians, the Greeks used the precincts of the temples as hospitals where treatment was given by dieting, hydrotherapy, massaging, etc. No clear idea of the infectivity of disease yet existed and the Athenians were powerless against the attacks of plague which struck at their city.

To the Romans we are particularly indebted for their contributions to public sanitation. The Romans were great administrators and the sanitary laws drawn up by competent legislators were well administered by efficient officers of the state called *aediles* whose duties were similar to those of a modern sanitary inspector. Methods of sewage disposal were greatly improved through the efforts of Roman sanitary engineers, who, by means of slave labour, built sewers comparable in technical efficiency with those in modern Canadian cities. The water supply of ancient Rome was a spectacular achievement, the remains of which are still to be seen. Water was brought to the city from the surrounding hills in nine aqueducts some of which were forty and fifty miles long. In these concrete channels supported, where necessary, on arches of masonry water flowed into the city reservoirs and out through lead pipes to private houses and public fountains. The capacity of this system was over 300 gallons per person daily, a supply adequate in terms of a modern industrial city. The public bath played a prominent part in Roman social life. It became a social centre for rich and poor and no Roman city was without one. Some of these baths were magnificent buildings of architectural beauty. There were three main divisions, the cold swimming pool, the hot bath and the *sudatorium* or the very hot room. The heating was done by means of hot-air flues running round the walls and beneath the floor through which the hot water pipes passed.

The field of public health was widened further by the Romans in the appointment of communal medical officers whose salary was paid from public funds. Each city employed from five to ten of these medical officers and their duties included the care of the sick poor and the instruction of medical students. Progress towards the institution of the public hospital system was made by the provision of infirmaries at which the poor might receive treatment, a service which was later encouraged and developed by the early Christians.

Like the Greeks the Romans were unable to cope with the great epidemics that swept through their cities bringing death to millions and contributing in no small way to the fall of the Empire. Although some speculation was made and opinions advanced concerning the spread of disease the idea of infectivity remained vague. People either fled the plague stricken city or had recourse to religious ceremonies. Because of this inability to deal with epidemic diseases the city of Rome, in spite of its high standard of sanitation, was not a healthy place. However, it is clear that problems of public health

did receive considerable attention in these early civilizations and many solutions of far-reaching importance were discovered.

**Public Health in Medieval Europe**

During the Middle Ages the gains made in public health by the Graeco-Roman civilization were generally lost in Europe although they were fortunately preserved by the Arabs in the Near East whence they made their way to Europe. In its effort to save the world from the excesses which had destroyed the Roman Empire, the Christian Church stressed spiritual health rather than bodily health. Man was taught to believe the teachings of the Church. The search for scientific truths was discredited. Thus we find a famous schoolman writing, "all diseases are to be ascribed to Demons." The sick took refuge in prayer and the intercession of saints. To seek the aid of a physician was regarded as a lack of faith; in fact, monks were forbidden to consult a physician. This extreme teaching by some churchmen was not widely accepted. In weighing the merits and demerits of the methods of the early Christian Church it should be remembered that if public health services which had been dispensed by pagan Rome were neglected by the medieval church the attitude of the Christians towards the sick and suffering was different from that of the Romans. State charity efficiently administered by the Romans was replaced by Christian love. In the name of this brotherly love a great deal of important work was done in the field of public health. The same Christian spirit continues in our own times to carry on work of inestimable value in this same field. It was this Christian sanctity of the human life of the individual that inspired the provision of hospitals, infirmaries, and orphanages in which the sick and the destitute might be cared for. From small beginnings in the Near East these charitable institutions supported by the alms of the faithful, spread throughout Europe. Medical attention in these institutions was invariably administered by clergymen but professional medical assistance was available in some of them. It should be noticed that hospitals gave relatively little medical treatment. They provided the sick with food and rest and administered particularly to the spiritual needs of the patient.

The Greek cult of personal beauty and the Roman insistence on cleanliness were strangely lacking in medieval life. Baths were taken infrequently. Houses were small and provided little privacy. Windows, where they were provided, were small and allowed little sunlight to penetrate into the houses. Consequently the houses were often dirty and verminous. The water supply came from the nearby river or a shallow well often polluted and insufficient. The narrow winding streets of a medieval town were commonly used as a dump for garbage. Laws were passed in an attempt to improve the sanitary conditions in the cities but because of widespread ignorance they remained a dead letter. The first National Sanitary Act was passed by parliament in England in 1388 and an attempt was made to see that the local authorities enforced this law.

That disease was prevalent during this period is not to be wondered at. From families of more than twenty children sometimes

only one would survive. Plague, leprosy, famine, pestilences, scurvy, syphilis, and malaria were the most virulent diseases. Famines due to crop failures with the accompanying pestilences were the scourge of medieval England. The ravages of the Black Death which raged in Europe and persisted up until the famous Plague of London in 1665 accounted for about one-fifth of the population in every generation. During that period, leprosy in Europe was gradually brought under control by segregating lepers and confining them to leper houses, and by the rise in the standard of living.

**Progress from the 16th Century On**

By the sixteenth century the influence of the Renaissance had brought about a general change in man's outlook on life. Medieval scholasticism had lost its grip on the intellectual life of Europe and an upsurging of intellectual curiosity reached a high peak. The famous work by Vesalius "On the structure of the human body" was the result of investigation and was a challenge to the accepted authority of Galen and Avicenna. But tradition dies hard. The work was given a mixed reception and not until the next century was any great scientific advance made in medical science.

The standard of living had improved by this time and more and better food was available to the working man. More attention was paid to personal hygiene. It was reported that Queen Elizabeth "doth bathe herself once a month whether she requires it or not." Domestic life was more comfortable but there was little improvement in the sanitation of the cities. The dirty narrow streets remained and the water supply came chiefly from polluted rivers. If these unsanitary conditions persisted it was not for lack of vision of what an improved state of affairs would mean. Sir Thomas More wrote his Utopia in 1516 in which he depicts life in the ideal state. Closing his eyes to the unwholesome urban conditions that surrounded him, he wrote of a city with pure water supply, wide clean streets, in which schools were provided for the children, mothers were given careful attention and spacious hospitals received the sick. Only in our century are we approaching the realization of More's utopian scheme.

The seventeenth century witnessed notable scientific discoveries and inventions that were to make important contributions in the realm of public health. The construction of a compound microscope by Galileo opened up a new world to medical science. With its aid the circulatory system of the human body was revealed, and tiny organisms examined. The study of bacteriology had begun. The plagues and pestilences which wasted the population of medieval Europe disappeared during this century. In England the plague came to an end in that horrible outburst of 1665, the year of the Great Plague of London. Methods of quarantine may have assisted in plague control but it is generally contended that a change in the rat population was the largest contributing factor. The exit of the plague was followed by the entrance of small-pox, a dreaded disease against which medical science waged a successful war during the next two centuries.

Urban living conditions improved very slowly. In seventeenth century England, narrow streets and open sewers still existed. Cellar-dwellings furnished living quarters for the poor, and accommodation for small shops and workshops. The disposal of household refuse remained an unsolved problem. Scavengers removed refuse to unsightly dumps outside the cities. London's water-supply was improved by the construction of the "New River," a private venture to bring fresh water to the city.

Marked progress was made during the eighteenth century in the field of medical science, and popular interest in science was on the increase. Governments by reason of the writing of such men as Montesquieu, Rosseau, Adam Smith and Bentham were forced to consider the needs of the people whom they represented. The State began to take a greater interest in the welfare of the people. Social welfare, public health, education, hospitals, public parks, etc., which for long had been supported by private benefactors, began to receive government attention and aid. Private benevolence and devotion to human welfare by the individual did not diminish. Notable examples are the work of John Howard on prison reform and the Methodist revival under Wesley.

The death rate, high at the beginning of the century, declined sharply in the second half of the century by reason of improved public health services. The food and domestic comfort of the masses had improved. Sanitation in the cities was of a higher order. Children received better care and, towards the end of the century, were protected from small-pox by vaccination. The public were gradually becoming conscious of the national responsibility in matters of health. Housing had improved little. To make matters worse the shocking Window Tax was imposed on house holders, who were taxed according to the number of windows in their houses. To avoid the payment of this tax, windows were bricked up depriving the tenants of light and air. Expanding industries and the increased use of coal filled the air of the cities with smoke and caused dense fogs that blotted out the sun and darkened the cities at high noon. Water supplies showed improvement with the use of steam pumps but the leaky wooden mains were still in use.

The advance of public health was seriously retarded for about twenty-five years by the unrestrained sale of cheap gin. So bad did the habit of drinking spirits become amongst men, women and children, with a consequent ill effect on the health of the people, that the government passed the Gin Acts to restrict the sale of spirits.

Much of the improvement that has been noticed in public health of this century can be attributed to the work of medical hygienists, some of whose names have become enshrined in the world's history. The greatest of these is perhaps that of Edward Jenner who by patient study and careful experiment produced a method of vaccination which was to rid the world of one of the greatest scourges of the time.

Hospital accommodation which for long had been entirely inadequate to cope with the indigent sick under the Poor Law now

increased as hospitals and infirmaries were erected by private funds. Compared with hospitals today they were ill-kept but they did attempt to give the poor the benefit of the increasing medical knowledge then available. The nursing profession, if such it can be called, of this period contributed little to the progress of public health services. Nurses were recruited from the lowest class of women, given no training and were poorly paid. Although hospital conditions did improve towards the end of the century patients undergoing operations were usually required to pay a deposit or furnish security for funeral expenses. Maternity hospitals established in this century did creditable work in the field of child-welfare. New scientific obstetrical methods were introduced and the sanitary treatment of child and mother was stressed. A scientific approach to the feeding and care of the infant began to make headway. The artificial feeding of children began to replace the unsatisfactory wet-nurse. The increased interest in child nurture may be attributed in no small measure to the work of Rousseau.

The nineteenth century was one of great progress in the struggle against the forces of ignorance, disease and poverty. Royal commissions clearly pointed the way to governmental responsibility in matters of public health but, important as public health services undoubtedly were, the people of Britain were not disposed to bow to the dictatorial methods of zealous reformers, preferring to take a chance on cholera than to be bullied into health. The century opened unpropitiously for the advancement of public health measures. Europe was engaged in the Napoleonic wars until 1815 and with peace came a twenty-year period of great economic distress. The war had dislocated trade. The labour market was unable to absorb the flood of ex-service men returned from the wars. Taxation and prices remained high. Above all the country was in the throes of an industrial revolution which was producing social problems of gigantic dimensions. It is not to be wondered at that we find a retardation in hygienic progress. But the words of the poet, "Sweet are the uses of adversity," carried more than a grain of truth for workers in the field of public health; in fact, adverse conditions gave impetus to untiring research and the introduction of many reforms.

The first measure of great importance was the reform of the Poor Law in 1834. This Act provided for a government department to control and supervise the care of the poor and the infirm. Relieving officers were appointed and paid by the government, medical services and accommodation were provided for children and for the sick, and many of the abuses connected with the workhouse were abolished.

A second measure of importance was the Municipal Corporations Act of 1835. By this Act matters concerning public health were placed in the hands of properly elected municipal authorities under the supervision of a central government department. This system of giving power to local bodies was in line with the increasingly democratic nature of British government and has persisted as the foundation of public health administration in democratic countries.

In spite of the bad start, health conditions in the nineteenth century steadily improved. The population of England, 9¾ millions in 1801 had risen to 23 millions by 1875. The death rate was on the decline. Small-pox and typhus and typhoid fevers were gradually brought under control. It is interesting to note that the public did not take kindly to vaccination, and Dr. Jenner was advised by the parliament that bestowed a gift on him for his services to the nation to leave London to escape a hostile populace. Cholera was carried to Europe from the Far East by ships' crews. Four outbreaks in England in the nineteenth century claimed many thousands of lives. When the nature of the disease was identified and the method of infection discovered, successful means of combating the disease were employed. Cholera is no longer dreaded in the western hemisphere.

Housing, generally inadequate and unsanitary in European cities, became a larger problem during the nineteenth century. Rows of unlovely, poorly built houses were crowded around the industrial areas of new and growing towns and cities with small regard for sanitation. Some idea of the rapid growth of industrial cities may be gathered from the population figures of Manchester, which, between 1774 and 1821, rose from 41,000 to 187,000.

From the working conditions that were imposed on factory workers in the early years of the industrial revolution it can be clearly seen that the imposition of government regulations covering hours of work and working conditions was justified. The early factories were in crowded, ill-ventilated buildings. The atmosphere was damp and hot. No protection from the machinery was provided. Working hours were often from 3 a.m. to 10 p.m. Children were regularly employed from the age of seven. The conditions under which the parish children from the work-houses worked and lived is one of the saddest chapters in English history. Champions of these unfortunates were not lacking. Through the efforts of Bentham, Owen and Shaftesbury public opinion was roused against these injustices and government intervention was invoked to eliminate abuses and to improve labour conditions in the factories. The Factory Act of 1833, passed by parliament in the face of bitter opposition from some industrialists, limited working hours, reduced child labour and provided for factory inspection to enforce safety measures. This Act became the foundation of factory legislation throughout the British Commonwealth. It was followed by a series of Acts designed to improve working conditions and raise the standard of the nation's health. Ardent workers in the cause of public health such as Chadwick were able to bring home to industrialists that the building up of wealth at the expense of the health of the worker was a shortsighted and foolish policy, apart from its inhumanity, by proving that good health actually saved the country's money. The thoroughgoing investigations of Chadwick as a Poor Law Commissioner brought before parliament and the public the suffering and waste caused by lack of sanitation, poor housing and long working hours. With the support of Lord Shaftesbury the recommendations of Chadwick became embodied in the First Public Health Act of 1848. This Act provided for a Central Board of Health with local Boards of Health in districts that asked for them. This initial step, important as it was,

did not bring the desired results. Local board members lacked the technical knowledge to handle sanitation and medical matters and the Central Board used high-handed, dictatorial methods that antagonized the public. This Board of Health was dismissed in 1854. A second Public Health Act followed in 1866. The provisions of this Act proved inadequate and a Third Public Health Act was passed in 1875 which is often referred to as the "magna carta of sanitary legislation." This Act empowered the local authorities to provide sewers, to enforce house drainage, to dispose of refuse, to improve streets, to supply water and to prevent the pollution of streams and wells, to quarantine or isolate infected persons, to provide hospitals and mortuaries, to deal with public nuisances, and to appoint medical officers and sanitary inspectors. The importance of this act and those which followed and were patterned on it can hardly be exaggerated. The health of the public had become the responsibility of the state.

Chadwick was responsible for another development in the field of public health, namely the establishment of the Registrar General's Office. Until this time the parish register kept by the church, in which baptisms and burials were recorded, furnished vital statistics. With the opening of the Registrar General's Office began the science of Vital Statistics, a very essential branch of public health.

Reference was made to the wretched state of the nursing profession in the eighteenth century. The work of Florence Nightingale in this field in the nineteenth century represents one of the greatest achievements in public health services in that age and it is to her that we look for the highest ideals of modern nursing. She travelled and studied and from what she saw and read built up her conception of the ideal nurse. During the Crimean War she nursed in military hospitals. Her terrible experiences at Scutari were the basis of her petitions to the British government for military hospital reforms. The Army Medical Service adopted her suggestions for safeguarding the health of the soldiers with the result that mortality rates dropped steeply in the years following.

As a pioneer in modern scientific nursing Miss Nightingale did her greatest work. She opened a training school for nurses in London and drew up a detailed course of training. Her insistence on training efficiency and good moral living raised the standard of nursing to that of a trained profession.

This brief summary has traced the slow but certain conquest of disease and the unsanitary conditions that produced them, the gradual improvement in national health, chiefly as it applies to Britain, and the final recognition on the part of the state government of its responsibilities in the health and welfare of the people it represents.

## PUBLIC HEALTH IN ALBERTA

Between the years 1875, the year of the Third Public Health Act of Great Britain and 1907, the year of Alberta's first Public Health Act, medical science made stupendous discoveries of great significance to public health. The history of the work of Pasteur and Lister to mention two of the most famous scientists of that period, belong to the story of medical science rather than that of public health. The great Dominion of Canada was taking shape in these years and as the social life of the provinces developed from the primitive pioneer life of the early colony to that of the large industrial community so the need for public health legislation arose. The older provinces of Ontario and Quebec looked to the British Public Health Act of 1875 for guidance and the newer provinces in the west were influenced by the public health legislation of the eastern provinces; hence both directly and indirectly the Act of 1875 is the foundation of public health legislation in Canada. It is for this reason that events leading to this Act were traced in some detail.

Public health is, by provision of the British North American Act, a provincial responsibility. At each provincial capital there is a Department of Public Health, or its equivalent, whose task it is to supervise, encourage and promote the public health services of the province. To what extent the various provincial departments influence each other in matters of public health legislation is difficult to determine, but at election time when the political parties are framing and proclaiming their platforms there is evidence of a healthy rivalry in this regard. Each party proudly proclaims the accomplishments of the provincial government in which its particular party forms the government in a field which catches the imagination of the masses.

Alberta's first Public Health Act of 1907 provided for a Provincial Board of Health to administer the health laws of the province and divided the province of Alberta into health districts with a local District Board of Health. The general objectives and functions of the provincial Board of Health are summarized in the Act as follows: "The provincial board of health shall take cognizance of the interests of health and life among the people of the province; they shall especially study the vital statistics of the province and shall endeavour to make an intelligent and profitable use of the collected records of death and of sickness among the people; they shall make sanitary investigations and inquiries respecting the causes of disease and especially of epidemics; the causes of mortality and the effects of localities, employments, conditions, habits and their circuumstances upon the health of the people; they shall make such suggestions and take such steps as to the prevention and suppression of contagious and infectious diseases as they shall deem most effective and proper and as will prevent and limit, as far as possible the rise and spread of disease; they shall inquire into the measures which are being taken by the local boards

for the limitation of any dangerous contagious or infectious disease or the performance of any duty through powers conferred upon said local boards by this board or any other Act and, should it appear that no efficient measures are being taken or that the said powers or duties are not being exercised, it shall be the duty of the provincial board, in the interests of the public health, to require the local board to exercise and enforce any of the said powers which, in the opinion of the provincial board, the urgency of the case demands; and in any such case where the local board, after request by the provincial board, neglects or refuses to exercise its powers, the provincial board may, with the approval of the minister, exercise and enforce at the expense of the municipality or organized portions of health districts any of the powers of local boards which under the circumstances the provincial board may consider necessary and the said board shall, when required or when it deems best, advise officers of the Government and local boards of health in regard to the public health and as to the means to be adopted to secure the same, and as to the location, drainage, water supply, disposal of excreta, heating and ventilation of any public institution or building." (Statutes of Alberta, 1907, pages 236-237).

The democratic policy of decentralizing power by placing it in hands of local authorities with supervision and advice from the central authority is illustrated in Alberta's first Public Health Act.

Not until 1919 was it considered necessary to set up a separate Department of Public Health. In that year the Department of Public Health Act was passed. It provided for a Department of Public Health to administer all the statutes of Government relating to health. The following list of Acts accompanied by the year in which each Act was passed is evidence enough of the expansion in the field of public health in this province.

The Public Health Act, 1907 (1910, and 1922).
The Vital Statistics Act, 1907.
The Municipal Hospitals Act, 1917, (1929).
The Venereal Diseases' Prevention Act, 1919, (1922).
The Public Health Nurses Act, 1919, (1922).
The Public Health Department Act, 1919.
The Mental Defectives Act, 1919, 1922.
The Hospitals Act, 1922, (1938).
The Private Hospitals Act, 1925.
The Mental Diseases Act, 1924.
The Tuberculosis Act, 1936.
The Maternal Welfare Act, 1937.
The Cancer Remedy Act, 1937.
The Poliomyelitis Sufferer's Act, 1938.
The Cancer Treatment and Prevention Act, 1940.
The Maternity Hospitalization Act, 1944.
The Alberta Health Insurance Act, 1946.
The Nursing Aides Act, 1947.

To administer these Acts the Department of Health with headquarters in Edmonton is organized into the divisions shown on the

chart on page 20. A detailed knowledge of the function, duties and services of each division is not necessary for this unit on community health service. If the class should wish to investigate one particular aspect of the public health services it would be necessary to obtain copies of the Act covering that service. These may be purchased from the King's Printer, Edmonton. The following brief summary of the function and services of each division, furnished by the Public Health Education Division, will serve as a basis for the community survey and for class discussion.

**Division of Communicable Diseases**

The function of this division is the prevention and control of communicable diseases.

The services offered are:

Advice to municipalities:
Consultation with doctors on matters of communicable disease control:
The supply of biological products for preventive work—diphtheria toxoid, scarlet fever toxin, pertussis vaccine, smallpox vaccine, prophylactic sera.
Treatment of poliomyelitis sufferers, giving free hospitalization at Edmonton and Calgary hospitals, appliances and splints and rehabilitation in the form of school instruction or vocational training.

**Division of Public Health Education**

This division studies health and passes on information to the public.

The services offered are:

Health education literature:
Health films (sound and silent):
Radio health talks:
Lectures:
Health publicity work.

**Division of Hospital and Medical Services**

The administration of the various hospital Acts is carried out by this division:

The services offered are:

Hospital inspection:
Advice to hospital boards and staffs:
Payment of hospital grants:
Medical, dental, optical and other services to Old-Age Pensioners:
Collection of hospital statistics:
Organization of municipal hospital districts.

**Provincial Laboratory**

The laboratory serves the various divisions of the Department of Health and assists the Attorney General's Department in crime detection.

The services offered are:

Bacteriological, pathological, serological and chemical examinations:
Medical training through the university:
The distribution of sera and biological products.

**Division of Public Health Nursing**

The function of this division is to supply public nursing services where needed.

The services offered are of two types, for urban centres and for isolated areas or districts.

| Urban centres (4). | **Districts (35).** |
|---|---|
| Maternal and child welfare. | Maternal and child welfare. |
| School health program. | School health program. |
| Communicable disease control | Communicable disease control. |
| Health education. | Health education. |
| | First aid service. |

**Municipal Hospitals Division**

The function of this division is to administer the Municipal Hospitals Act. In 1948, fifty-two municipal hospitals were operating to serve one-third of the population of Alberta.

The procedure for forming a hospital district includes:

1. Petition from 25 per cent of the taxpayers in the given area or councils of municipalities concerned.
2. Minimum population of 4,000.
3. Petition to Minister of Health.
4. Municipal hospital district established by order of the Minister.
5. Provisional board appointed by councils of municipalities concerned.
6. Plan devised for taxation on assessed values to provide money to build, equip, operate, retire debenture issue.
7. Plan advertised in district for 14 days.
8. Sixty-five per cent of those voting must vote in favour, to carry the plan.

**Sanitary Engineering Division**

The task of this division is to prevent the spread of disease by environmental factors.

The services it offers are:

The examination and approval of water works schemes, sewerage schemes, sewage disposal plants, hospital sites, sources of water supply, cemetery sites, tourist camps, logging camps, and the enforcing of fumigation regulations: Inspection by qualified sanitary inspectors:

The investigation of complaints:

Sanitation training.

**Social Hygiene Division**

The function of this division is the control and prevention of the venereal diseases.

The services offered are:

Free diagnostic and treatment clinics for venereal diseases located at Edmonton, Calgary, Medicine Hat, High Prairie, McLennan, Fort Saskatchewan Gaol, Slave Lake district.

Consultation service for patients in any part of the province:

Free drugs for venereal disease patients:

Education on the prevention of the venereal diseases.

**Cancer Services Division**

These services are provided to control cancer.

The services offered are:

Free medical examinations at the clinics in Edmonton and Calgary:

X-ray or radium treatment, surgical treatment, free hospitalization for diagnostic treatment when recommended by the clinics:

Education through lectures and pamphlets.

**Mental Health Division**

This division is divided into three sub-divisions, Provincial Mental Institutions, Mental Hygiene and Eugenics. The following summary of the services of this division indicates its function.

The services offered by the Provincial Mental Institutes are:

The provision of properly equipped and staffed institutes for those who are mentally ill:

Diagnosis:

Treatment by means of:

(1) Psychotherapy—used in varying degrees with most mentally ill patients:

(2) Chemotherapy—involves the treatment of mental and nervous conditions with the aid of drugs:

(3) Shock Therapy—Electro Schock given to certain selected mentally ill patients, often with beneficial results:

(4) Fever Therapy by Malaria—given to patients suffering from syphilis affecting the nervous system

(5) Physiotherapy and Hydrotherapy—such as prolonged baths and sedative packs

(6) Occupational Therapy and Recreational Therapy—encourages patient to take a part and interest in various handicrafts such as sewing, fancy work, woodwork, metal work, leather work, modelling, etc.

(7) Surgical Therapy—Lobotomies are performed on some carefully selected patients.

Surgical service for (a) General surgical treatment
(b) Sexual sterilization operations

Nurses' and Attendants Training Schools are operated as a regular part of the institutional services.

The nurses' course at the Provincial Mental Hospital, Ponoka, is affiliated with general hospitals in Edmonton and Calgary. One hundred high school credits are necessary to enter this four year course leading to a diploma in Psychiatric and General Nursing:

Social Service Department:

Dietary Service and Treatment:

Religious Services.

The function of the Mental Hygiene Branch is to give expert advice regarding the treatment and handling of persons afflicted with milder forms of mental disorder.

The services offered are:

The operation of mental hygiene or guidance clinics at Edmonton, Lethbridge, Medicine Hat, High River, Stettler, Calgary, Red Deer, Lamont, and other points. The cases referred to these clinics are those involving social or mental maladjustment, the mild forms of mental disorders, epilepsy and disorders of the nervous system:

Psychiatric, mental and physical examinations:

Investigation and follow-up work by social workers:

Investigation and preparation of Eugenics Board cases.

The function of the Eugenics Board is the prevention of hereditary mental illness.

The services offered are:

Sexual sterilization:

The collection and dissemination of information on eugenics.

**Tuberculosis Division**

The services offered are:

The operation of sanatoria at Calgary and Edmonton, clinics at Edmonton, Calgary, Drumheller, Lethbridge, Medicine Hat, and other points and mobile X-ray units.

Free treatment for infectious types (residential qualifications):
Free clinic service:
Physical examination, X-ray examination:
Tuuberculin tests:
Out-patient pneumothorax services:
The operation of a laboratory.

**Entomology Division**

This division is concerned with the control of insect-born diseases.

The services are:

The study of the incidence of insect-born diseases of man and animals:
The implementation of methods of control:
The conduct of rat investigations:
Advice concerning the control of insect pests in homes, institutions, restaurants, etc.:
Education services.

**Vital Statistics Branch**

The function of this branch is to do the "book-keeping" of public health. There is a local registrar in every district.

The duties of this branch are:

To collect, arrange and tabulate all statistics within the province on:

Births
Marriages
Divorces
Deaths
(The law provides for the registration of births within one month, marriages within three days, death within twenty-four hours.)
To publish an annual report of statistics.

**Nutrition Division**

The promotion of health through the development of proper eating habits is the concern of this division.

The services offered are:

The distribution of nutrition literature:
Assistance to nurses in nutrition training:
Lectures on nutrition:
Assistance with dietary problems in smaller hospitals.

**District Health Units**

A number of municipalities may be grouped into a health unit by the Minister of Public Health with the consent of the municipal councils concerned. For health districts formed in this way a full time staff consisting of a medical officer of health, a public health nurse, a sanitary inspector and a secretary-technician is provided. One-half of the expenses involved in maintaining this staff is borne by the municipalities within the health district, the other half by the provincial government.

The services offered are:

Communicable Disease Program:

(a) Quuarantine of patients
(b) Control of sources and contact
(c) Inoculation program against smallpox( diphtheria, whooping cough, scarlet fever, typhoid fever
(d) Consultations with family doctor
(e) Tuberculosis control: Supervision of cases, contacts and suspects; tuberculin testing; community X-ray programs
(f) Laboratory tests in communicable disease control
(g) Acts as serum centres for community

Sanitation—Inspection of:

Water supplies
Sewage disposal plants
Garbage disposal
Milk supplies
Meat supplies
Other food sources
Laboratory tests

Pre-Natal Service:

Post-Natal Service:

Child Welfare Clinics:

School Service:

Public health education in and through the school
Sanitation of schools and grounds
Communicable disease control among pupils
Immunization
Periodic examination of pupils
Dental service is provided in some districts

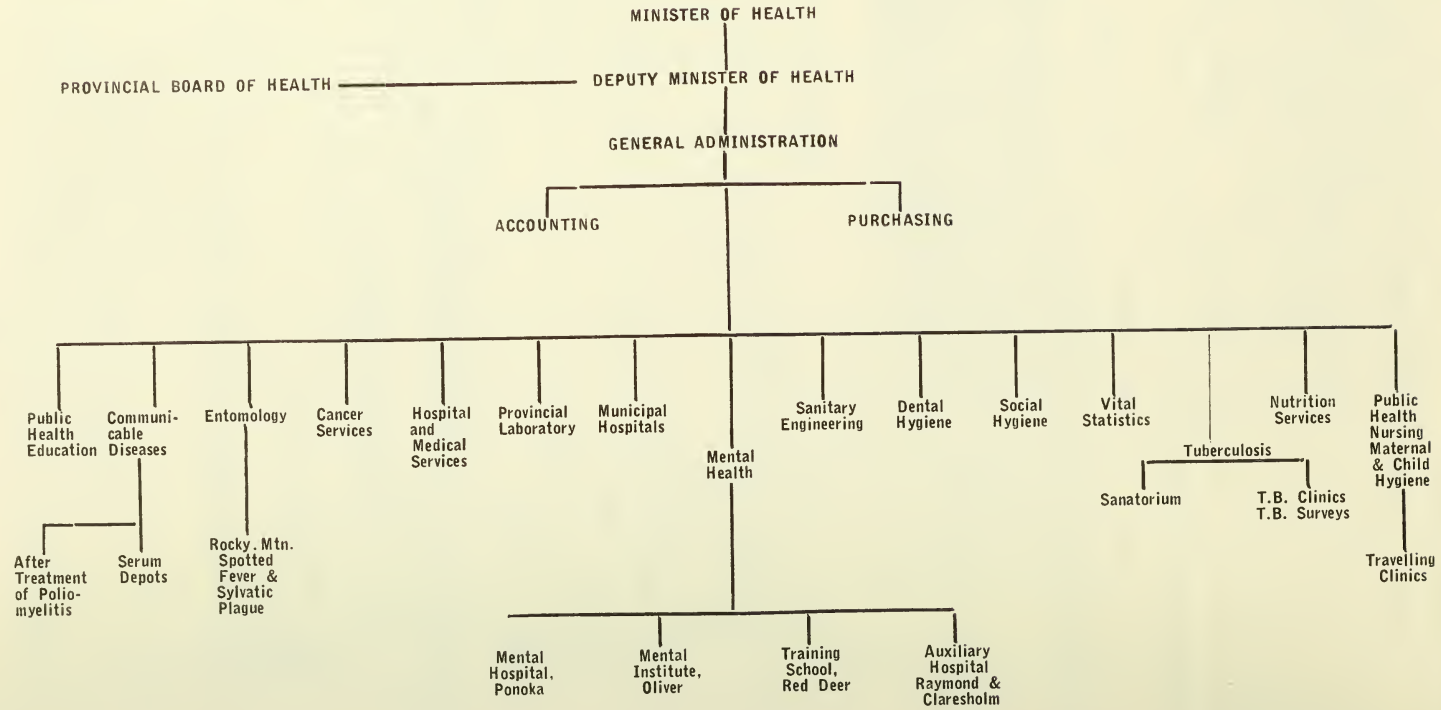
Life Extension

Mental Hygiene Clinics

Nutrition

Health Education

# DIVISIONAL ORGANIZATION CHART OF THE ALBERTA DEPARTMENT OF PUBLIC HEALTH, FEBRUARY, 1948



## FEDERAL HEALTH SERVICES

Although public health is properly a provincial responsibility there are international, national and interprovincial health matters which are federal in scope and require administration by a federal Department of Health. The Department of Health and Welfare at Ottawa was created by an Act of Parliament in 1944. The Public Health branch operates in such fields as maritime quarantine, immigrant health, medical services for seamen, civil service health, food and drugs standard, control of drugs, care of lepers, radio health work, health of Indians and Eskimos.

The Department of Health and Welfare is authorized to study facilities and future requirements in the fields of medical, dental, nursing and hospital services. This work is carried on by the following directorates:

I. Directorate of Health Services

- Blindness Control
- Child and Maternal Health
- Civil Service Health
- Dental Health
- Epidemiology
- Hospital Design
- Industrial Health
- Mental Health
- Narcotics
- Nutrition
- Public Health Engineering
- Quarantine, Immigration and Sick Mariner Service
- Venereal Disease Control
- Laboratory of Hygiene

II. Directorate of Indian Health Service

III. Directorate of Food and Drug Divisions

- Inspection
- Laboratory
- Proprietory and Patent Medicine

IV. Directorate of Health Insurance Studies

The Dominion Health Department assists the Provincial Departments of Health in conducting investigations and research into public health problems.

Lastly, the Dominion Government makes grants to Provincial Departments of Health and to voluntary organizations engaged in public health work. In 1948 the Dominion Government put into operation a federal health plan costing $30,000,000. These funds will be paid to the provincial governments which endorse the federal scheme. The government of Alberta has already expressed a readiness to co-operate in this dominion-wide health program. The dominion scheme provides for Health Survey Grants to enable the provincial governments to make studies of all its health requirements; National Health Grants to extend and improve the present public health services, to finance the control of cancer, venereal diseases, tuberculosis, and to provide funds for the training of personnel in public health work; Hospital Construction Grants to overcome the hospital shortage. The expenditure of these large additional sums of money yearly on health indicates clearly that Canada does regard health along with education as a state responsibility.

## NEW PUBLIC HEALTH SERVICES IN GREAT BRITAIN

In the summer of 1948 the entire population of Great Britain, by the National Insurance Scheme, became insured against ill-health, unemployment, industrial accidents, disease or disablement. The national health service provides free medical, hospital, dental and eye advice and treatment. It is available to the whole population, rich or poor, insured or not, on equal terms. Health centres are to be open at all times for advice and education, for dental and ophthalmic consultations and for clinical work. Patients may choose their own doctors, paying a fee only if they want special treatment or a private hospital room. Regular forms of hospital treatment, services of specialists and nurses, supply of drugs, medicines and medical appliances are all free. Services for expectant and nursing mothers and young children, a home midwife service, and schemes of health visiting round out the complete system for the prevention and care of disease. Everyone between the ages of 16 and 65 (60 in the case of women) contributes towards the cost of this service. Some pay as little as 45 cents weekly and others up to but not exceeding $1.25. This all inclusive scheme is not going into effect without hindrances and opposition. In the first place the aftermath of war has left Britain with a serious shortage of building accommodation, equipment and personnel so that the services outlined cannot be provided on a full scale. Secondly, there is strong opposition on the part of the medical profession and a minority of the population who do not approve of the wholesale nationalization of medical services.

## NATIONS UNITE FOR WORLD HEALTH

Attention today is focussed on the efforts of the United Nations to maintain world peace. One of the agencies active in this work is the World Health Organization (WHO). The study of community and national health might be broadened to include this important international development. Dr. Brock Chisholm, Executive Secretary of the organization, a Canadian who has made important contributions in the field of public health, wrote the following summary of the aims and achievements of WHO.

"In the history of world health, four recent dates will assuredly stand out as landmarks. On June 26, 1945, at San Francisco, fifty nations signed a Charter which recognized health as a factor for the promotion of "conditions of stability and well-being" and therefore included it among the fields of co-operative endeavor with which the United Nations should be concerned.

"Within twelve months of this development, on June 19, 1946, the first international health conference to be called by the United Nations convened in New York City. There the Constitution of the new World Health Organization—A Magna Charta for health—was signed by 61 nations. An Interim Commission was also established to function until WHO came into existence.

"Another landmark is April 7, 1948, when the 26th Member state of the United Nations ratified the WHO Constitution, thus completing the requirements to bring the organization into being.

"Then on June 24, 1948, the representatives of most countries on earth met at Geneva for the first World Health Assembly. Thus, for the first time in history, a single organization to cope with all international health problems took shape and began working. But, perhaps, this date—June 24, 1948—will have an even greater and more subtle significance for the future.

"Historians may remember 1948 as the year in which the peoples of the world lived alternately between fear and hope: fear of atomic war, total destruction; hope that the United Nations would eliminate this threat. And they may well conclude that the coming into force of the United Nations World Health Organization gave the people additional reason for hope when hope was most needed.

"For it is not in the disagreements that the peoples of the world, eager for peace and security, can find hope. It is rather in the concrete examples of international co-operation that the world can see the possibilities of achieving the aims of the United Nations.

"The coming into force of the WHO Consitution is indeed one of the outstanding examples of international co-operation of the postwar era.

"In the past, wars have always been followed by widespread disease. And always attempts were made to control the spread of epidemics. While international co-operation during the last war

cut down considerably the spread of disease, it left new problems perhaps even more difficult to solve—unsatisfactory postwar economic and social conditions in a greater part of the world, the mass destruction of hospitals, the loss of books and teaching equipment, the slaughter of medical personnel.

"This United Nations effort at international health co-operation is however different from all previous attempts. The World Health Organization is based upon the idea that more is required than an international system of defence against communicable disease. The WHO Constitution defines "health" as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." To realize health according to this definition, it is necessary that all available knowledge and techniques should be pooled internationally and that a positive attempt should be made on a global scale to apply all the resources of the health sciences for "the attainment by all peoples of the highest possible level of health" as outlined in the Consitution.

"As Dr. A. Stampar, Chairman of the Interim Commission said: "Today only a very small proportion of the people enjoy the benefits to health that science can bring. But it is becoming increasingly possible to alter detrimental environments and to work towards a positive conception of health that will contribute immeasurably to the full enjoyment of life. . . "

"This, in part, is the principal task of the Assembly. We must find that best method of applying our knowledge and resources to the prevention of avoidable suffering and the raising of health standards among all the peoples of the world.

"The World Health Organization will begin its first year of operation with the benefit of more than a century of progress in this field. Behind WHO will be the pioneer work of the Pan American Sanitary Bureau, the Office International d'Hygiene Publique, the League of Nations Health Organization, and the wartime experiences of UNRRA. The new-born health organization will also inherit from the Interim Commission almost two years of concrete experience in many parts of the world.

"In Greece, the WHO Field Service has succeeded in reducing the incidence of malaria in some areas from about 85 per cent to as low as 5 per cent. There being virtually no specialists or trained nurses in tuberculosis except near Athens, major emphasis was given to the training of local personnel and to the installation of X-ray apparatus.

"In China, too, WHO is continuing work begun by UNRRA. Control measures against plague, cholera, and tuberculosis are being carried out by experts on WHO's China Mission. In Austria, Ethiopia, Italy, and other countries, work goes forward.

"But this is only a beginning. This is work that had only to be continued until the permanent organization could be established.

"Now the long-range program can be initiated. Now we have a United Nations World Health Organization to cope with the world's

critical health needs and to reach all levels of humanity with a positive program.

"It cannot be expected that WHO can develop and initiate plans for all the important health matters requiring international attention in the first year of its existence. The Interim Commission has therefore proposed that the main fields of activity in 1949 be limited to malaria, maternal and child health, tuberculosis, and venereal diseases. However, programs are also outlined for a number of other global health problems, with recommendations for special attention to alcoholism, drug addiction, hygiene of seafarers, influenza, nursing, nutrition, rural hygiene, and schistosomiasis.

"The delegates to the first World Health Assembly will put in probably five weeks of intensive work. For WHO—both the member nations and the Secretariat—there will be a year of hard work in 1949 to implement the decisions made in these weeks. But, most important, for the peoples of the world a beginning has been made toward realizing WHO's aim:

> . . . the enjoyment of the highest attainable standard of health for every human being without distinction of race, religion, political belief, economic or social condition.

"The peoples of the world have the right to expect much from the World Health Organization; for, as is stated in the WHO Constitution, "the health of all peoples is fundamental to the attainment of peace and security . . . . "

United Nations Bulletin
July 1, 1948.

## COMPULSION AND PUBLIC HEALTH

The year by year expansion in the fields of public health and social security, the piling up of legislation and the consequent increase in the number of regulations cannot escape attention. A discussion of community health services will inevitably lead to the question of the enforcement of regulations and their real or apparent curtailment of personal liberty. Students may have listened to heated debates on the advisability of building a local hospital or improving the community's water supply. Such discussions may have shown more heat than light and children may have received a wrong impression of the relations between local or provincial health authorities and the public. To those who are not fully acquainted with the circumstances or the principles involved there may seem to be apparent injustices and undue coercion. Some of this confusion can be cleared away by an unbiassed examination of the facts of the case and the reasoning behind the decisions.

History clearly indicates and even the most ardent champions of individual freedom admit that the need for regulations in the general interest does exist. The parent is not free to control the education of his child. The School Act requires children from the ages of six to fourteen years to attend school. The Alberta Labour Act prevents the parent from sending his children out to work in office or factory before they have reached the age of fifteen. Persons infected with a communicable disease are quarantined or isolated by the law to prevent the spread of infection. Employers of labour must conform to the regulations concerning minimum wages, hours of work and working conditions as set forth in the Alberta Labour Act. The sale of alcoholic drinks is restricted. Many similar restrictions might be listed. To the thoughtful person these regulations imposed by the state—and by the state is meant the majority of the voters in the province or the country—can be reconciled with personal liberty in that greater freedom and safety for all results from these restrictions. These laws are therefore enforced with little opposition.

In varying degrees all government controls are irksome and tend to rouse in the individual an antagonism; nevertheless the educated citizen realizes that the end of law is not to restrain, but to ensure a larger freedom. What freedom would there be for the illiterate child prevented from attending school by unthinking parents, or allowed to remain at home because he did not want to attend school. Freedom of choice in this particular case is not in the interest of the individual or of the community. By the same token if it can be proved that the restrictions on the sale of alcoholic drinks reduce the evils which flow from unrestrained drinking and that a higher and better standard of life and greater efficiency is thereby effected, then there is justification in removing a temptation from those who cannot resist it. It is always important to establish in the minds of the public proof that good or a larger freedom will follow restrictions. The benefits of compulsory education would be denied

by no intelligent citizen. The public health legislation in Alberta, whether relating to infectious diseases, nuisances, housing, mental hygiene or sanitation, is designed to protect the ignorant or the impotent against the carelessness or callousness of would-be offenders.

Why is compulsion a necessary element in our social organization if we are prepared to admit that the regulations we have examined are beneficial? Why, for instance, must there be a law compelling parents, who are most anxious to have their children educated, to send their children to school? The answer is, of course, that there still remains a minority who by reason of ignorance, lack of moral responsibility or mental deficiency would disregard the benefits of public education to the detriment of the future generation if left to their own devices. Nonetheless, we must look for a gradual diminishing in the scope of such compulsion through the extension of our educational services. Education on a moral plane, in school and family life, towards the ideals of the Christian character will undoubtedly help to reduce to a minimum the compulsion now required for those who do not evolve in response to the advancing tide of morality.

In countries such as Canada where there is a democratic government, compulsion is reduced to a minimum. The democratic government is voted into power by the majority who, in theory at least, ordain and sanction the actions of its representatives and indirectly make their own laws. For the majority, therefore, there is no compulsion.

This does not imply that the voice of the minority should not be heard. Respect for the rights of the minority is one of the fundamental principles of a truly democratic government. The history of public health shows that often minority groups have pointed the way to improved conditions or have stood by their rights and have prevented that loss of personal freedom which is dear to all true supporters of democracy.

## CHARACTER AND PUBLIC HEALTH

Many of the great scientists, hygienists and humanitarians who through the ages have sought to conquer disease, to relieve the suffering and to replace dirt and squalour by healthy, sanitary living conditions were stirred with a deep and true love of their fellow men. They dedicated themselves to the cause of humanity and their lives are a memorial to the Christian principles which dominate much of the work in this field. A great humanitarian of our own day wrote: "Those who assume that health and longevity are assured by well-being and a sufficiency or superfluity of nourishment need to be reminded that men do not live by bread alone. Wealth and food are not the only decisive factors. Bodily and mental health are preserved by moderation and morality; and to live healthily a man must have a purpose in life, something to care for, something to love, and must conquer the fear of death that assails him alike in moments of acute dangers and at hours of petty anxiety about health." Progress along the path to better national and world health has been accomplished not only by the successful battles of the scientist against disease and the conditions that foster disease but also by the light shed by great Christian teachers like Wesley on the spiritual darkness of immorality, cruelty, greed and irreligion. Science and legislation alone cannot raise the standard of public health to the highest possible level. They must be joined by a strong moral desire for a better life based on Christian principles.

Workers in the field of public health are generally agreed that in many aspects of their work character is a supremely important factor in securing success. They point out that it is the diseases the prevention of which depends on socially moral conduct that have so far yielded the least success. This is especially true of the venereal diseases. The hope of ridding the population of Canada from the dangers of the social diseases lies to a large extent in the moral and spiritual attitude of the people. The student who has received an adequate health education, which many high schools in Canada endeavour to give, should have learned to stand by his obligations as a citizen to promote and practice the health habits he knows to be good. He must be on his guard against carelessness which may lead to the spread of diseases, and learn to obey public health regulations as a duty towards humanity and not merely to avoid a penalty for non-compliance. Character training in self-control and in the proper use of leisure can accomplish much in fortifying the moral outlook on venereal disease. In this connection it must be remembered that the highest object of public health work is to cultivate the best mental and moral potentialities of each individual.

Opportunities for character training abound in social studies and in the study of community public health services, in particular, there are great possibilities of influencing character and conduct by the examples set by great personalities in public health work, by the record of human progress and by lessons in moral conduct

and altruism contained in modern education. Biographies of William Harvey, John Howard, Florence Nightingale, Louis Pasteur, Dr. Trudeau, Clifford Beers, F. G. Banting and others show the peaks of human endeavour towards and beyond which youth may strive. The history of public health is one chapter in the story of human progress towards altruism, and an active concern on the part of each member of the community for the well-being of the whole community, the nation and the world. The love of immediate neighbour expands to embrace the whole of mankind. If the wars of the twentieth century would seem to deny this progress of altruism, further reflection will show that although the forces of barbarism yet remain, their works have shocked the majority and they have provoked the enlistment of an overwhelming force in the defence of those things which the world acknowledges as righteous, just and honourable. In the increasing scope of public health and welfare services there is a fundamental sense of social responsibility and justice in the relief of the suffering and the destitute, in the prevention of cruelty and in the necessity for decency, propriety, and moral conduct.

## SOME OBJECTIVES

The following objectives are listed merely to guide the teacher in his thinking. This list is neither complete nor prescriptive. The study of public health will be more successful and a greater interest will be expressed by boys and girls if they share in the responsibility of formulating the objectives and in deciding what they expect to get from their study of public health. Classroom activities assume new meaning for students who see that they are studying problems which they fully agree are of importance to them.

Our knowledge of public health should include:

1. A knowledge of the progress that has been made in the field of public health.
2. A knowledge of the scope of public health as a dominion, provincial and local problem.
3. An understanding of the importance of modern sanitation.
4. An understanding of the social need for clinics and hospitals.
5. An understanding of the need for government inspection of water supplies, restaurants, dairies, hospitals, etc.
6. A knowledge of community public health problems.
7. An understanding of the importance of the control and prevention of communicable diseases.

Our attitude towards public health should manifest:

1. A feeling of individual responsibility for preventing the spread of disease.
2. A moral responsibility to live decently according to Christian principles.
3. A generosity in supporting the Red Cross, Alberta Tuberculosis Association and other private health agencies.
4. An intelligent interest in all public health developments in the community.

The skills and abilities that we should derive from this study should include:

1. The ability to use fully and wisely the public health facilities of the community.
2. The ability to interpret accurately public health information in pamphlets, regulations, etc.
3. The ability to recognize public health problems, to analyze and put forward solutions.
4. The ability to gather accurate information, to organize facts, to interpret them and to draw conclusions.
5. The ability to discuss public health problems objectively with classmates and members of the community.
6. The ability to set down in writing ideas on public health in a logical, clearly expressed, accurate form.

## SUGGESTED ACTIVITIES

### Pre-test

The pre-test should contrive to arouse interest in public health, to assist in defining in broad outlines the scope of public health, to show the pupil what he knows and what he does not know about the subject, to indicate the importance of public health services and to point the way to a wholesome attitude towards health and life.

The following pre-test is suggestive only. Many teachers will prefer to make their own tests in order to focus attention on some particular community or school problem.

Test your understanding of public health and its problems. Below are a number of statements. Opposite each write:

A if you agree with the statement.
D if you disagree with the statement.
N if you are undecided about the truth of the statement.

1. Public health includes all of those health problems which, for the benefit of every person in the country, demand action by the state.
2. The roots of the public health services of today reach back to the ancient civilizations of Greece and Rome.
3. Modern public health services were undreamt of in sixteenth century England.
4. Many famous workers in the field of public health were guided in their work by a love for their fellow men and a desire to improve their living conditions.
5. The British Public Health Act of 1875 was the model for much of the public health legislation in the British Empire which followed.
6. The public health services in Alberta are entirely in the hands of the Department of Public Health.
7. The people of Alberta will utilize fully their public health services and be willing to spend more money on them as they become better informed on their benefits.
8. The health of all peoples of the world is fundamental to the attainment of world peace and security.
9. Privately supported organizations carry on important public health work in Canada.
10. State health regulations are not made to restrict but to ensure a larger freedom.
11. In Canada public health is the responsibility of the provincial governments.
12. Scientists and legislators may take all the credit for the present high standard of public health services.

**Audio-Visual Aids**

Films and film-strips provide excellent introductory material not only to illustrate facts presented in the over view or in the opening lectures and discussions but also to arouse an interest in the problem. Below are listed films available from the Film Loan Library, Division of Health Education, Department of Public Health, Edmonton, Alberta.

**Films: Sound and Silent**

**PHQ-8 Man Against Microbe**

10 minutes. Dramatizes discoveries that were decisive in the fight against infectious disease. Deals with work of van Leeuwenhoek, Pasteur, Lister, Koch, and Behring.

**PHQ-9 New Ways for Old**

10 minutes. Outlines the history of preventive treatment for diphtheria. Rather antiquated as to costumes, etc.

**PHQ-20 Preventing the Spread of Disease**

10 minutes. Title suggests content of film.

**PHQ-37 Fighting Plague in Alberta**

30 minutes. Picture opens with a brief history of plague districts throughout the world. Map shows spread of plague through Western North America, including Alberta. Picture deals with activities of field crews conducted by the Alberta Department of Health, in the collection of tissue specimens for plague examinations and the arrival of the tissue specimens at the Laboratory of Hygiene, Kamloops, British Columbia.

**PHT-28 Smallpox: The Ever Present Menace**

Stresses the necessity of vaccination and re-vaccination, and the dangers of the disease.

**PHT-30 The Nose Has It**

8 minutes. Instructive comedy on sneezing.

**How Disease Travels**

10 minutes. Walt Disney Production. Very ably demonstrated by 3 dintinct types of diseases:

1. Intestinal—which may be carried by water and insects.
2. Respiratory—spread by coughing.
3. Skin—through person to person contact.

Methods of prevention are emphasized in each of the above causes; stress to be placed upon personal hygiene and good health behaviour.

**PHQ-22 Tuberculosis**

11 minutes. Interesting film showing diagrams of the development of the disease, and the daily routine of small boys and girls in a Preventive Home for Tuberculosis.

**PHT-2 Behind the Shadows**

12 minutes. A doctor tells a group of high school students the

story of tuberculosis, explaining such facts as transmission, skin testing, X-raying, spread of the disease in the lungs, pneumothorax cure. A very clear and instructive presentation of basic facts about the disease.

**PHT-21 Goodbye Mr. Germ**

14 minutes. Presents basic facts about T.B. largely by animated cartoons. The doctor is shown talking with the germ "Tee-Bee," who is prevailed upon to tell the story of his life. The doctor tells the germ of the modern way of fighting T.B.

**Tuberculosis**

10 minutes. Walt Disney Production. This is a story of the lung and T.B. The causative agent—tubercle bacillus shown diagramatically as it might appear under a microscope. The method of spreading the disease by coughing, inhalation, the common use of articles, food handling, etc. Symptoms—tiredness, weakness, coughing. Detection—examination of sputum by microscopic and x-ray tests. Cure—rest and isolation. Methods of prevention.

**PHQ-13 Your Health Department (2 reels)**

20 minutes. Taking an average family as an example, the film shows what a city health department does for them and for the community. Described are prenatal care; blood tests; child care, including smallpox vaccination and diphtheria immunization; school hygiene; health education; sanitation; etc.

**PHT-19 'Twixt the Cup and the Lip**

22 minutes. Describes unsatisfactory conditions in the handling of cooking, eating and drinking utensils. Gives detailed information on approved methods and means of complying with regulations.

**PHQ-12—What Price Health**

Deals with the need for sanitary toilet construction. A story explains the health hazards due to unsanitary privies, shows modern sanitary methods, and points out that the cost of these may be outweighed by the possible cost resulting from lack of sanitation. For rural audiences.

**PHT-19 Water, Friend or Enemy**

10 minutes. A Walt Disney cartoon on unsafe and safe water supplies. Depicts the dangers and sources of contamination and illustrates methods of safeguarding spring and well water.

**PHT-31 Health—and the Cycle of Water**

25 minutes. Presents fictionalized history of water purification in America. Explains purification of water in a modern filtration plant and the principles of a modern sewage disposal plant.

**Environmental Sanitation**

10 minutes. Walt Disney Production. Story of a city developing from a small community. We see how the water becomes contaminated, unsanitary conditions can prevail with filth, fleas,

rats, and mice. Complementary to this are epidemics of sickness and sorrow. The remedy—cleanliness in water supply through the erection of dams, supply mains and sewage disposal systems. Sanitation is pointed out through communal laundry units, clean streets, garbage collection, attractive stores, storm sewers, etc. The proper handling of foods to prevent contamination is pleasingly demonstrated. Good mental habits are suggested through decent play grounds.

**Filmstrips**

**All Washed Up for Safe, Clean Milk (with record)**

Sanitary methods of milking and cooling of milk. Examination for harmful micro-organisms. Sanitary barns, milk houses, pails, etc., care of cows, the need for personal hygiene and the use of milking machine, pasteurization plant, transportation of milk.

**Edward Jenner and Smallpox**

This film mentions some of the outstanding achievements of the eighteenth century. Method of smallpox inoculation of that period is explained. Jenner developed a vaccine from cowpox and performed his first inoculation in 1796.

**Edward Livingstone and the Crusade Against Tuberculosis**

The early life history of Trudeau and the period he spent in the Adirondacks receiving treatment for tuberculosis. He established the first tuberculosis treatment colony at Saranac Lake in 1884. This is the beginning of the sanatorium movement in America. 1882, Robert Koch discovered the tubercle bacillus and how the disease is spread. Early measures for prevention included the sputum test.

1895, Roentgen's x-ray discovery is used to identify early tuberculosis.

**Florence Nightingale and Founding of Professional Nursing**

In the early nineteenth century nursing was considered a low grade occupation. Florence Nightingale desired to become a nurse and took her training in Germany. Her service in the Crimea, 1854. The death rate from neglect in military hospitals reduced 95% in six months as a result of good nursing. The beginning of the nursing profession in England.

**Hygiene Series**

(f) Water Supply and Drainage—relation of springs and well to underground water. Safe and unsafe wells. The artesian well. Dangerous location of spring, structure of a filter bed. A filtration plant. A drinking fountain. Septic tank and sand filters used to purify sewage. Modern trap used in sinks and toilets.

**Louis Pasteur and the Germ Theory of Infection**

His early career as professor of chemistry at the University of Strasbourg and the dean of science at the University of Lille. In the study of fermentation he found that living micro-organisms caused wine to become diseased. Discovered that heat would destroy this organism. His germ theory developed: communi-

cable diseases and infections are caused by living germs which enter body from outside.

Joseph Lister first applied this theory in surgery by the use of antiseptics. This was followed by the aseptic method now used.

**Madame Curie and the Story of Radium**

The story of the discovery of radium is told by this picture.

**Robert Koch and the Discovery of the Tubercle Bacillus**

Koch's early interest in nature led to his study of medicine in 1862. He discovered anthrax bacillus and its life cycle by the use of the microscope and hanging drop method which he devised. He also invented the solid culture medium for bacteria colony growth. In 1882, he discovered tubercule bacillus, and the cholera germ in 1883.

**T.B. Facts**

What is T.B.? The cause of T.B. How you get T.B. How T.B. can be found and cured. How you can avoid T.B.

**Walter Reed and the Conquest of Yellow Fever**

This army doctor studied typhoid and yellow fever. He proved that yellow fever is carried by the mosquito. Humans and monkeys used for fever tests. Method of control: attack on breeding places of the mosquito by use of oil and screens.

**The Local Survey**

The student approaching a local survey of public health services and problems with some knowledge of the history of public health and the public health legislation of the province should be well equipped and motivated for the elementary research work entailed. A general class discussion as a preliminary survey will serve to determine the nature of the administrative unit of which the community is a part and the public health services available. The experiences of class members of inoculations, hospital treatment, quarantine, etc., may be the starting point for much of the discussion. If a local health official can be persuaded to lead this discussion so much the better.

The success of the local survey will depend a great deal not only on the interest and care with which the student committees carry out their assignments but also on the framing of the assignments themselves. The services and the problems investigated must have local significance and be associated as closely as possible with the lives of the students. The following topics are suggestive of the type of assignment the high school student can be expected to undertake:

1. How are the public services organized in our community? e.g. local health officials, scope of their work, location of offices, clinics, how financed.
2. How are communicable diseases controlled in our community? e.g. the common communicable diseases, duties of parent and health officers, the more serious communicable diseases such as poliomyelitis, government assistance in helping persons afflicted.

3. How is the community supplied with water?
   e.g. Water sources—rivers, wells, purification, water analysis, distribution (pumping station, etc.) adequacy, local water supply problems and possible solutions.
4. Is our community sanitary?
   e.g. Garbage disposal, sewage disposal, street-cleaning, regulations concerning all food handlers, government inspections, sanitation problems and their solution.
5. What hospital services have we in the community?
   e.g. Location of hospitals, staff, capacity, service to the public, how financed, local hospitalization scheme, hospital problems and their solution.
6. What public health services does our school offer?
   e.g. Examinations, school nurse, health education, other services by local arrangement.
7. What is the community doing to control the social diseases?
   e.g. The social diseases, their threat to national health, prevention by decent living, control work by government clinics, location of clinics.
8. How does our community help in the fight against tuberculosis?
   e.g. X-ray examinations, health habits to prevent spread of tuberculosis, tuberculosis treatment, work of Alberta Tuberculosis Association.
9. Are we paying sufficient attention to nutrition?
   e.g. What is nutrition? What are the results of a class nutrition survey? What services are offered by the Nutrition Branch of the Department of Health? How can these services be used to the greatest advantage in our community? Work out nutrition scales for typical members of the community.

Much of the information required will be gathered outside of school hours by committee members who will submit their material to the whole committee during the class period. If excursions can be arranged for small committees to visit water works, hospitals, local health boards, garbage disposal plants, etc. the teacher should make certain that careful preparation for the excursion has been made and that the students clearly understand the purpose of the trip. Moreover, committees should realize their responsibility as class representatives to present to the class a clear, accurate report on their experiences and findings.

From personal interviews the student will glean valuable information. Here again, careful preparation is essential. A list of specific questions should be drawn up beforehand in order to save the time of the person interviewed and to make certain that the required information is obtained. A short business-like interview will convince the person interviewed that he has been of service to the student and public relations between school and community will have been strengthened. An unrehearsed interview may leave the impression with the person interviewed that he has been pestered and his time wasted for no reason.

Correspondence will undoubtedly play a part in gathering together material for this unit. These letters must be correct, specific

and courteous. Committee members responsible for the writing of letters should be encouraged to submit them to the teacher for appraisal. If the class needs several copies of a pamphlet or report, the request should be made in one letter in which the needs of class are clearly stated. Agencies and government departments are put to some inconvenience and greater expense if half a dozen letters straggle in from the same school with the same request involving six letters, six envelopes and six postal charges, where one would have been sufficient.

The number of problems to be taken up will depend upon the size of the class. Small classes can undertake only one or two while large classes may attempt up to six. Class discussion will indicate the interests of the students and the particular aspects of public health that have local significance.

**Reading Activities**

While the class is engaged in the survey of the history of public health all individual members may be expected to do some general reading. From the following list of references, books and pamphlets the student may select one or more:

Living in Our Communities; Krug and Quillen; pages 62-103.
Building Our Life Together; Arnold and Banks, Chapter XXVI.
Across the Ages; Capen, Unit 13.
You and Your Community; O'Rourke.
Social Living; Landis and Landis; Chapters XXX and XXXI.

From the annotated list of reading:

Great Victorians, Florence Nightingale; G. L. Strachey
The Great Physician; E. Reid
Horse and Buggy Doctor; A. E. Hertzler
Labrador Doctor; W. Grenfell
Madam Curie; E. Curie
Microbe Hunters; P. de Kruif
The Citadel; A. J. Cronin
Story Behind Great Medical Discoveries; Montgomery.

For more specific information on topics listed under "the local survey" the following references will be of value:

**Alberta Hospitals**

*Hospitals and Sanatoria
*On the Alberta Health Horizon
The Hospital Act; King's Printer, Edmonton: price 35 cents.

**The Water Supply**

*Disinfection of small water supplies
*Wells
*Home Treatment of Rural Water Supplies

**Sanitation**

*Disposal of Community Wastes
*Housefly Control

*The Protection of a Community's Food Supply
*Protecting the Community's Milk Supply
*Sewage Treatment
*On the Alberta Health Horizon

**Communicable Diseases Control**

*Communicable Disease Regulations (Wall Chart)
*About Rheumatic Fever
*The Common Cold
*Chicken Pox
*Epidemic Influenza
*Infantile Paralysis
*Measles
*Mumps
*Scarlet Fever

**The Social Diseases**

*Combating Early Syphilis
*Facts about Syphilis and Gonorrhea
*Venereal Disease Quiz
*Victory over Disease

**Tuberculosis**

*Canada Fights Tuberculosis
*Grist for the Teacher's Mill
*How to Kill T.B. Germs
*How Your Body Fights T.B.
*Tuberculosis from 5 to 20
*What You Should Know about Tuberculosis

**Public Health Services in Alberta**

*On the Alberta Health Horizon
Our Provincial Government, School-Book Branch, Edmonton, price 30c
*Rural Health Districts
*What Your Health Department Does to Protect Your Health
The Public Health Acts, King's Printer, Edmonton, Price 45 cents
Annual Report of Local Health Board; obtainable from the local civic offices.
Red Cross Publications; obtainable through your local Red Cross Branch.

**Nutrition**

*Healthful Eating (Revised Edition)
*Food Tables
*Weekly Score Sheet
*Instructions for the use of the Score Sheet
*List of Publications

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* All references marked with an asterisk are obtainable free of charge from the Division of Health Education, Department of Public Health, Edmonton.

**Classroom Activities**

Classroom activities that may be carried out as part of the local survey to illustrate important facts:

1. A pictorial wall map showing the location of public health facilities in the community. (Local Survey)
2. Time chart of steps to public health showing important events, discoveries, legislature, etc. through the ages, or for Alberta. (Class study).
3. Graphs showing:
   (a) Infant mortality in Alberta for the past twenty years (Canada Year Book).
   (b) Deaths from tuberculosis in Canada for the past twenty years (Canada Year Book).
   (c) Natural increase in population of Alberta over the past twenty years (Canada Year Book).
   (d) Absences from school due to sickness (Local Survey).
4. Statistics on hospitals operating in Alberta (Canada Year Book.
5. Circle graph showing how the provincial government spends the public health dollar. (On the Alberta Health Horizon).
6. Collect newspaper and magazine articles on local or provincial public health matters.

**Discussions**

The work of committees on the local survey should provide a rich fund of topics for class discussions. Panel discussions by committee members can be used to present the material to the class and to provoke general discussion. Some suggested topics are:

1. How well is immunization against infectious diseases carried on in our community?
2. Are compulsory public health regulations necessary?
3. How can decent living raise the standard of the nation's health?
4. Is the school health program adequate?
5. What is our community doing to prevent the spread of tuberculosis?
6. What is the Department of Public Health doing to protect the health of the people in Alberta?
7. How does the local health board function?
8. What vocations are open to Alberta youth in the field of public health?
9. In what respects could the public health services in our community be improved?
10. Should Alberta adopt a more extensive public health scheme comparable to the one recently put into operation in Great Britain?
11. How can an international public health organization help to promote world peace?
12. What must we do to make our community the healthiest place to live in?

**Reports and Written Papers**

The following topics may be used as the subject for reports to be delivered orally before the class or handed in as written assignments:

1. The Life Story of Florence Nightingale, Louis Pasteur, Joseph Lister, Marie Curie, Dr. Banting, Edward Jenner, Vesalius or Robert Koch.
2. The Work of the Red Cross.
3. WHO
4. A Visit to the Hospital.
5. Why I Should Like to Find a Career in Public Health.
6. The Work of Our Public Health District.

**Culminating Activities**

1. The local survey projects may be bound together in one volume and placed in the classroom library.
2. A bulletin board display covering the local survey may be arranged.
3. The local survey may reveal certain inadequacies which can be remedied locally. A petition can be drawn up and submitted to the local health board embodying class proposals for improving the public health services.

**Evaluation**

The activities of committees and individual students in carrying out projects selected from those outlined in this unit or those developed by teacher and class will afford many opportunities to evaluate the work of students. Points to bear in mind are student's growth in the understanding of public health problems, the development of an intelligent attitude towards public health services, character training and skill in gathering and organizing material for written reports or oral discussion.

A variety of tests can be made up by the teacher to supplement the evaluation of class work. Multiple choice or true-false tests may be used to test growth in understanding of an intelligent attitude towards public health problems and services, and knowledge of the terms used. Below are examples illustrating the type of items that might be included in such tests.

**Vocabulary and Concept Test**

The following multiple-choice test is intended to assist you in keeping the terms used in this unit clearly in mind. In the space provided, place the letter of the response which best completes each of the following statements.

.....1. Communicable diseases are
(a) diseases acquired at birth.
(b) a special class of mental diseases.
(c) diseases which are readily passed on by contact with those suffering from the disease.
(d) diseases most common to animals.

.....2. A sanatorium is
(a) an establishment for the treatment of the sick, usually tuberculosis patients.
(b) a home for aged senators.
(c) a piece of land or territory set aside to preserve wild life.
(d) a burial ground.

.....3. The term vital statistics refers to
(a) a system of food rationing.
(b) health legislation.
(c) public health bookkeeping.
(d) the number of people entitled to vote.

.....4. Sanitation is
(a) a sewage disposal plant.
(b) that which is saved from a fire or wreck.
(c) the science of creating healthful conditions.
(d) soundness of mind.

.....5. The infant mortality rate concerns
(a) the number of juvenile delinquents in a particular area.
(b) the number of children born in a particular area.
(c) the number of infant deaths in a particular area in relation to the number who live.
(d) the number of children leaving school each year in a particular area.

.....6. A clinic is
(a) a medicine to cure cholic.
(b) a patent dirt-remover.
(c) a cramp in some part of the body.
(d) a centre connected with a hospital at which outpatients may receive treatment.

.....7. Immunization refers to
(a) a cure for colds.
(b) coming into a new country to live.
(c) protection against diseases.
(d) a source of light.

.....8. Quarantine isolates persons
(a) who have committed a crime.
(b) who are insane.
(c) who have an infectious disease.
(d) who enter a monastery.

.....9. The Alberta Department of Public Health
(a) administers the public health laws of the province.
(b) controls all public health activities in the province.
(c) makes the public health laws of the province.
(d) is directed by the Dominion Government at Ottawa.

.....10. Mental hygiene is
(a) the training one gets from the radio quiz.
(b) keeping ones teeth clean.
(c) a type of mental disease.
(d) practice or treatment calculated to produce a sound mind.

.....11. The term epidemic refers to
(a) a very dangerous disease.
(b) the prevalence of a sickness in the community.

(c) unsanitary conditions.
(d) good social behaviour.

.....12. The expression public health includes
(a) all health problems of the public.
(b) only communicable diseases.
(c) those health problems that require collective action by the community or the state.
(d) only those health problems that the working man cannot afford to look after himself.

**Attitude Test**

This test may be used to check student reaction to certain generalizations relative to public health. The examples given indicate the nature of this type of test. Teachers may make up tests to meet local problems.

Below are a number of statements about public health. Read each one carefully and draw a circle around.

A—if you agree with the statement.
D—if you disagree with the statement.
N—if you are not certain about the statement.

A D N 1. Newspaper publicity to epidemics only serves to scare people.
A D N 2. All flowing river water is fit to drink.
A D N 3. The health of school children is solely the concern of their parents.
A D N 4. Everyone should know about the public health services and regulations of the community.
A D N 5. Health experts should make our public health laws, not governments.
A D N 6. Health matters such as individual drinking cups and towels, ventilation, physical examinations, etc., are public health matters.
A D N 7. Since the nation's health is of primary importance more money should be spent to raise the health standard of Canada.
A D N 8. Public health laws place unnecessary restraint on the actions of the individual.
A D N 9. Good clean living can reduce the number of public health problems.
A D N 10. Health legislation alone cannot raise the standard of public health to its highest level. It must be accompanied by a desire on the part of each individual to live according to the highest Christian ideals.
A D N 11. The public health service in Alberta is improving and expanding year by year.
A D N 12. Local authority in matters of public health is essential in a democracy.

**Problems Tests on the Application of Public Health Principles**

The following problems represent situations in which you may find yourself and require the application of public health knowledge acquired in the study of this unit.

**Problem I**

Doug, the star pitcher on the school team, finds his chest covered with red spots when he wakes up. He does not feel too well, but does not want to let his team down in the big game that after noon. What should he do? (Check the courses of action that you think Doug should follow).

1. Say nothing about his condition.
2. Turn out for the game in the hope that he will be able to go through with it.
3. Take an aspirin.
4. Refuse to see the doctor until after this game.
5. Notify the health officer.
6. Remain at home until either a doctor or the health officer has examined him.

**Problem 2**

Mr. Elliot has bought a small acreage by the lake for a summer home. There is a well. He is told that the well water makes good tea and that the late owner used the lake water when the well dried up.

What should Mr. Elliott do about the water before the family move in for the summer?

1. Test the water by looking at it in a glass and drinking some?
2. Ask the neighbor about the water?
3. Take a chance on its being good enough?
4. Treat the water with chlorine?
5. Take a sample of the water to the local health officer?
6. Warn the children against using the water until he hears from the health officer?

**Problem 3**

Mr. Logan's neighbor has a rubbish dump at the back of his house which is not only giving off a bad odour but is attracting a lot of flies.

What should Mr. Logan do?

1. Ask the neighbor to have the rubbish removed.
2. Threaten to add the neighbor's dead body to the rubbish if he doesn't do something about it.
3. Phone up the police and ask them to arrest the neighbor.
4. A reasonable time after asking the neighbor to remove the rubbish, advise the local sanitary inspector that the nuisance exists.
5. Complain to the Minister of Public Health.

N.B.—The examples of tests included in this section on evaluation must be regarded by the teacher simply as guides to the types of test that may be used to assess pupil progress in the direction of the objectives set up by the class and the teacher. They must not be used as prescribed tests for the work on this project.

## BIBLIOGRAPHY

Medicine and the State; A Newsholme (Williams and Wilkins).

Towards National Health; J. A. Delmege (Heinemann).

Health and Human Progress; R. Sand (Macmillan).

Health and Social Evolution; G. Newman (Allen and Unwin).

Health Problems in Organized Society; A. Newsholme (P. S. King).

Canada Year Book.

On the Alberta Health Horizon, Department of Health, Edmonton.

Government in Public Health; Mustard (The Commonwealth Fund, New York).

Youth and Health; Canadian Youth Mission (Ryerson Press).

Books listed in the above bibliography are sources of information used in compiling this resource unit. They are not references authorized for use in the classroom.

Medical Building, University of Alberta